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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/574,541

04/26/2006

Dieter Stroh

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DENNISON, SCHULTZ & MACDONALD
1727 KING STREET
SUITE 105
ALEXANDRIA, VA 22314

EXAMINER

PATEL, DEVANG R

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

01/07/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,541	Applicant(s) STROH ET AL.	
	Examiner DEVANG PATEL	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-15, 17-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-15, 17-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/19/08 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 14-15 and 17-27** rejected under 35 U.S.C. 103(a) as being obvious over Neuwirth et al. (US 5096532), with supporting evidence of Tamamoto (US 2004/0112547).

a. **Regarding claim 14**, Neuwirth et al. ("**Neuwirth**") discloses a rotary horn (sonotrode) for an ultrasonic welding device having a longitudinal axis, the sonotrode having a head portion comprising at least one working surface which is substantially parallel to the longitudinal axis, a front surface which is substantially perpendicular to the at least one working surface, and a back surface (fig. 30). The limitation "for welding metal" relates to the material or

Art Unit: 1793

article being worked upon by a structure, and inclusion of such material does not impart patentability to an apparatus claim (*See MPEP 2115*). Nonetheless, the working surface is capable of welding metal since the horn is made from suitable metals such as monel, titanium, or alloy steels (col. 10, lines 20-27). Neuwirth also discloses that the nature of materials to be welded is not critical (col. 7, lines 41-46).

- i. the sonotrode transfers ultrasonic vibrations in the direction of the longitudinal axis [fig. 22; col. 5, line 25];
- ii. the front surface of the sonotrode includes at least one reinforcement (figs. 29-30). It is unclear whether Neuwirth discloses the reinforcement “exhibiting triangular geometry”. However, there are only a finite number of predictable structural shapes for such reinforcement (rectangular, triangular, circular, or polygonal). The claim would have been obvious because in an attempt to design the horn with minimal deflections, a person of ordinary skill would pursue the known options within his or her technical grasp and if this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. A triangular reinforcement is capable of reducing deflection of at least one working surface.
- iii. In any event, Tamamoto discloses a front surface 2100 of the ultrasonic horn (sonotrode) having a triangular projection (i.e. reinforcement; fig. 3). Tamamoto further discloses that it is possible to

control a damping factor and induce ultrasonic vibration without accompanying a vertical vibration (reduced deflection) due to specific shape of the part 2100 [¶ 67, 70]. In view of Tamamoto, it would have been obvious to a person of ordinary skill at the time of the invention to pursue a triangular reinforcement in order to control deflective vibration, and if this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense.

- b. **As to claim 15**, in accordance with broadest reasonable interpretation, the term “rib” is defined to be a structural member which supports the shape of something (dictionary.com). Thus, the reinforcement of Neuwirth is a rib [fig. 30].
- c. **As to claim 17**, the reinforcement of Neuwirth increases in height over the front surface from a peripheral edge of the front surface at the at least one working surface, in the direction of the longitudinal axis.
- d. **As to claim 18**, the reinforcement of Neuwirth runs perpendicular to the at least one working surface.
- e. **As to claims 19-22**, the reinforcement of Neuwirth is shaped as a beam in a linear manner. The reinforcement projects from the entire front surface and is shaped symmetrically to a symmetry plane of the longitudinal axis.
- f. **As to claim 23**, the limitation of deflection upon ultrasonic excitation concerns functionality of the reinforcement. The sonotrode of Neuwirth having triangular reinforcement is reasonably expected to provide a deflection ratio as claimed.

Art Unit: 1793

- g. **As to claims 24-26**, Neuwirth discloses the reinforcement extension over the front surface (dimension 327/347/357) of 5 mm [table 11; figs. 32-35].
- h. **As to claim 27**, the reinforcement of Neuwirth is unitary in structure with the sonotrode head.

Response to Arguments

1. Applicant's arguments filed 9/19/08 have been fully considered but they are not persuasive.
2. Applicant argues that the ultrasonic horn of Neuwirth is intended for welding thermoplastics while the claimed sonotrode is used for metal welding. In response, Examiner contends that the limitation "for welding metal" relates to the material or article being worked upon by a structure, and inclusion of such material does not impart patentability to an apparatus claim (*See MPEP 2115*). In any event, the working surface of Neuwirth is capable of welding metal since the horn is made from suitable metals such as monel, titanium, or alloy steels (col. 10, lines 20-27). Neuwirth also discloses that the nature of materials to be welded is not critical (col. 7, lines 41-46).
3. Applicant also argues that in Neuwirth, the sections that project on the front side beyond the ring-shaped work area are not meant for reinforcement of the sonotrode. Although Neuwirth does not explicitly state that the sections reinforce the sonotrode, one of ordinary skill in the art would have readily appreciated that the sections as shown (figs. 29-30) intrinsically act as reinforcements.

Conclusion

Claims 14-15, 17-27 are rejected.

Pertinent art: Sheehan (US 6457626).

The rejections above rely on the references for all the teachings expressed in the text of the references and/or one of ordinary skill in the art would have reasonably understood from the texts. Only specific portions of the texts have been pointed out to emphasize certain aspects of the prior art, however, each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

Applicant is reminded to specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. 1.121; 37 C.F.R. Part 41.37; and MPEP 714.02.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVANG PATEL whose telephone number is (571)270-3636. The examiner can normally be reached on Monday thru Thursday, 8:00 am to 5:30 pm, EST..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Ward can be reached on 571-272-1223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devang Patel/
Examiner, Art Unit 1793

/Jessica L. Ward/
Supervisory Patent Examiner, Art Unit 1793